

**FastY1[b1]**

$$\left\{ -\frac{2t[1]}{v^3} + \frac{2t[1]}{v} - 2vt[1] - \frac{4z^2t[1]}{v^3} + \frac{10z^2t[1]}{v} - 4vz^2t[1] - \frac{2z^4t[1]}{v^3} + \frac{8z^4t[1]}{v} - 2vz^4t[1] + \frac{2z^6t[1]}{v} \right\}$$

**Y1[b1] /. HB[1] → 1**

$$-\frac{2t[1]}{v^3} + \frac{2t[1]}{v} - 2vt[1] - \frac{4z^2t[1]}{v^3} + \frac{10z^2t[1]}{v} - 4vz^2t[1] - \frac{2z^4t[1]}{v^3} + \frac{8z^4t[1]}{v} - 2vz^4t[1] + \frac{2z^6t[1]}{v}$$

**t1 = Y2[BR[Knot[3, 1]]]**

**Timing[t2 = FastY2[BR[Knot[3, 1]]]]**

**Timing[t3 = FastY2[BR[Knot[4, 1]]]]**

{39.843,

$$\left\{ \frac{t[1]}{v^3} - \frac{6t[1]}{v} + 7vt[1] - 4v^3t[1] - \frac{z^2t[1]}{v^5} + \frac{5z^2t[1]}{v^3} - \frac{10z^2t[1]}{v} + 21vz^2t[1] - 7v^3z^2t[1] + \frac{z^4t[1]}{v^3} - \frac{10z^4t[1]}{v} + 13vz^4t[1] - 2v^3z^4t[1] - \frac{2z^6t[1]}{v} + 2vz^6t[1] - \frac{2t[2]}{v^5} + \frac{2t[2]}{v^3} - \frac{3t[2]}{v} + 4vt[2] - 5v^3t[2] + 2v^5t[2] - \frac{2z^2t[2]}{v^5} + \frac{9z^2t[2]}{v^3} - \frac{5z^2t[2]}{v} + 16vz^2t[2] - 11v^3z^2t[2] + v^5z^2t[2] + \frac{2z^4t[2]}{v^3} - \frac{9z^4t[2]}{v} + 12vz^4t[2] - 3v^3z^4t[2] - \frac{2z^6t[2]}{v} + 2vz^6t[2], -\frac{2t[1]}{v^5z} + \frac{5t[1]}{v^3z} - \frac{3t[1]}{vz} - \frac{3vt[1]}{z} + \frac{5v^3t[1]}{z} - \frac{2v^5t[1]}{z} - \frac{5zt[1]}{v^5} + \frac{12zt[1]}{v^3} - \frac{5zt[1]}{v} - 11vzt[1] + 10v^3zt[1] - v^5zt[1] - \frac{2z^3t[1]}{v^5} + \frac{11z^3t[1]}{v^3} - \frac{z^3t[1]}{v} - 11vz^3t[1] + 3v^3z^3t[1] + \frac{2z^5t[1]}{v^3} - 2vz^5t[1] + \frac{2t[2]}{v^5z} - \frac{5t[2]}{v^3z} + \frac{3t[2]}{vz} + \frac{3vt[2]}{z} - \frac{5v^3t[2]}{z} + \frac{2v^5t[2]}{z} - \frac{3zt[2]}{v^5} - \frac{2zt[2]}{v^3} + \frac{8zt[2]}{v} - vzt[2] - 5v^3zt[2] + 3v^5zt[2] - \frac{2z^3t[2]}{v^5} + \frac{8z^3t[2]}{v^3} + \frac{6z^3t[2]}{v} - 9vz^3t[2] - 4v^3z^3t[2] + v^5z^3t[2] + \frac{2z^5t[2]}{v^3} + \frac{z^5t[2]}{v} - 2vz^5t[2] - v^3z^5t[2] \right\}$$

Timing[t3 = FastY2[BR[Knot[4, 1]]]]

$$\left\{ 12.605, \right.$$

$$\left\{ \frac{t[1]}{v^3} - \frac{6t[1]}{v} + 7vt[1] - 4v^3t[1] - \frac{z^2t[1]}{v^5} + \frac{5z^2t[1]}{v^3} - \frac{10z^2t[1]}{v} + 21vz^2t[1] - 7v^3z^2t[1] + \right.$$

$$\frac{z^4t[1]}{v^3} - \frac{10z^4t[1]}{v} + 13vz^4t[1] - 2v^3z^4t[1] - \frac{2z^6t[1]}{v} + 2vz^6t[1] - \frac{2t[2]}{v^5} + \frac{2t[2]}{v^3} -$$

$$\frac{3t[2]}{v} + 4vt[2] - 5v^3t[2] + 2v^5t[2] - \frac{2z^2t[2]}{v^5} + \frac{9z^2t[2]}{v^3} - \frac{5z^2t[2]}{v} + 16vz^2t[2] -$$

$$11v^3z^2t[2] + v^5z^2t[2] + \frac{2z^4t[2]}{v^3} - \frac{9z^4t[2]}{v} + 12vz^4t[2] - 3v^3z^4t[2] - \frac{2z^6t[2]}{v} + 2vz^6t[2],$$

$$- \frac{2t[1]}{v^5z} + \frac{5t[1]}{v^3z} - \frac{3t[1]}{vz} - \frac{3vt[1]}{z} + \frac{5v^3t[1]}{z} - \frac{2v^5t[1]}{z} - \frac{5zt[1]}{v^5} + \frac{12zt[1]}{v^3} - \frac{5zt[1]}{v} -$$

$$11vzt[1] + 10v^3zt[1] - v^5zt[1] - \frac{2z^3t[1]}{v^5} + \frac{11z^3t[1]}{v^3} - \frac{z^3t[1]}{v} - 11vz^3t[1] +$$

$$3v^3z^3t[1] + \frac{2z^5t[1]}{v^3} - 2vz^5t[1] + \frac{2t[2]}{v^5z} - \frac{5t[2]}{v^3z} + \frac{3t[2]}{vz} + \frac{3vt[2]}{z} - \frac{5v^3t[2]}{z} + \frac{2v^5t[2]}{z} -$$

$$\frac{3zt[2]}{v^5} - \frac{2zt[2]}{v^3} + \frac{8zt[2]}{v} - vzt[2] - 5v^3zt[2] + 3v^5zt[2] - \frac{2z^3t[2]}{v^5} + \frac{8z^3t[2]}{v^3} +$$

$$\left. \left. \frac{6z^3t[2]}{v} - 9vz^3t[2] - 4v^3z^3t[2] + v^5z^3t[2] + \frac{2z^5t[2]}{v^3} + \frac{z^5t[2]}{v} - 2vz^5t[2] - v^3z^5t[2] \right\} \right\}$$

Timing[t4 = FastY2[BR[Knot[6, 1]]]]

$$\left\{ 6594.72, \left\{ \frac{t[1]}{v^7} - \frac{t[1]}{v^5} - \frac{7t[1]}{v} + 9vt[1] - 5v^5t[1] - \frac{8z^2t[1]}{v^7} + \frac{13z^2t[1]}{v^5} - \frac{z^2t[1]}{v^3} - \frac{15z^2t[1]}{v} + 29vz^2t[1] + 16v^3z^2t[1] - 10v^5z^2t[1] - \frac{9z^4t[1]}{v^7} + \frac{31z^4t[1]}{v^5} - \frac{13z^4t[1]}{v^3} - \frac{23z^4t[1]}{v} + 7vz^4t[1] + 16v^3z^4t[1] - 3v^5z^4t[1] - \frac{2z^6t[1]}{v^7} + \frac{15z^6t[1]}{v^5} - \frac{11z^6t[1]}{v^3} - \frac{5z^6t[1]}{v} + 3v^3z^6t[1] + \frac{2z^8t[1]}{v^5} - \frac{2z^8t[1]}{v^3} - \frac{3t[2]}{v^7} + \frac{2t[2]}{v^5} + \frac{4t[2]}{v^3} - \frac{9t[2]}{v} + 7vt[2] - 3v^3t[2] - 3v^5t[2] + 2v^7t[2] - \frac{18z^2t[2]}{v^7} + \frac{29z^2t[2]}{v^5} + \frac{17z^2t[2]}{v^3} - \frac{23z^2t[2]}{v} + 24vz^2t[2] + 7v^3z^2t[2] - 13v^5z^2t[2] + v^7z^2t[2] - \frac{15z^4t[2]}{v^7} + \frac{51z^4t[2]}{v^5} - \frac{z^4t[2]}{v^3} - \frac{41z^4t[2]}{v} + 2vz^4t[2] + 14v^3z^4t[2] - 4v^5z^4t[2] - \frac{3z^6t[2]}{v^7} + \frac{23z^6t[2]}{v^5} - \frac{9z^6t[2]}{v^3} - \frac{13z^6t[2]}{v} - vz^6t[2] + 3v^3z^6t[2] + \frac{3z^8t[2]}{v^5} - \frac{2z^8t[2]}{v^3} - \frac{z^8t[2]}{v}, \right. \\ \left. - \frac{4t[1]}{v^7z} + \frac{11t[1]}{v^5z} - \frac{10t[1]}{v^3z} + \frac{4t[1]}{vz} - \frac{4vt[1]}{z} + \frac{3v^3t[1]}{z} + \frac{2v^5t[1]}{z} - \frac{2v^7t[1]}{z} - \frac{22z^2t[1]}{v^7} + \frac{57z^2t[1]}{v^5} - \frac{43z^2t[1]}{v^3} + \frac{11z^2t[1]}{v} - 14vz^2t[1] + v^3z^2t[1] + 11v^5z^2t[1] - v^7z^2t[1] - \frac{36z^3t[1]}{v^7} + \frac{110z^3t[1]}{v^5} - \frac{64z^3t[1]}{v^3} + \frac{10z^3t[1]}{v} - 12vz^3t[1] - 12v^3z^3t[1] + 4v^5z^3t[1] - \frac{19z^5t[1]}{v^7} + \frac{88z^5t[1]}{v^5} - \frac{58z^5t[1]}{v^3} - \frac{6z^5t[1]}{v} - 2vz^5t[1] - 3v^3z^5t[1] - \frac{3z^7t[1]}{v^7} + \frac{28z^7t[1]}{v^5} - \frac{23z^7t[1]}{v^3} - \frac{2z^7t[1]}{v} + \frac{3z^9t[1]}{v^5} - \frac{3z^9t[1]}{v^3} + \frac{4t[2]}{v^7z} - \frac{11t[2]}{v^5z} + \frac{10t[2]}{v^3z} - \frac{4t[2]}{vz} + \frac{4vt[2]}{z} - \frac{3v^3t[2]}{z} - \frac{2v^5t[2]}{z} + \frac{2v^7t[2]}{z} - \frac{2zt[2]}{v^7} - \frac{19zt[2]}{v^5} + \frac{32z^2t[2]}{v^3} - \frac{8z^2t[2]}{v} - 3vz^2t[2] - 4v^3z^2t[2] + v^5z^2t[2] + 3v^7z^2t[2] - \frac{24z^3t[2]}{v^7} + \frac{36z^3t[2]}{v^5} + \frac{42z^3t[2]}{v^3} - \frac{18z^3t[2]}{v} - 18vz^3t[2] - 17v^3z^3t[2] - 2v^5z^3t[2] + v^7z^3t[2] - \frac{17z^5t[2]}{v^7} + \frac{62z^5t[2]}{v^5} - \frac{32z^5t[2]}{v} - 8vz^5t[2] - 4v^3z^5t[2] - v^5z^5t[2] - \frac{3z^7t[2]}{v^7} + \frac{25z^7t[2]}{v^5} - \frac{10z^7t[2]}{v^3} - \frac{11z^7t[2]}{v} - vz^7t[2] + \frac{3z^9t[2]}{v^5} - \frac{2z^9t[2]}{v^3} - \frac{z^9t[2]}{v} \right\} \right\}$$

Timing[t6 = FastY2[BR[Knot["K11n34"]]]]

KnotTheory::loading: Loading precomputed data in DTCode4KnotsTo11.

KnotTheory::credits:

The GaussCode to PD conversion was written by Siddarth Sankaran at the University of Toronto in the summer of 2005.

KnotTheory:credits:

Vogel's algorithm was implemented by Dan Carney in the summer of 2005 at the University of Toronto.

$$\begin{aligned}
& \left\{ 51\,940.7, \left\{ \frac{3\,t[1]}{v^7} + \frac{12\,t[1]}{v^5} - \frac{107\,t[1]}{v^3} + \frac{242\,t[1]}{v} - 248\,v\,t[1] + 114\,v^3\,t[1] - 19\,v^5\,t[1] - \frac{12\,z^2\,t[1]}{v^7} + \right. \right. \\
& \frac{158\,z^2\,t[1]}{v^5} - \frac{795\,z^2\,t[1]}{v^3} + \frac{1771\,z^2\,t[1]}{v} - 1875\,v\,z^2\,t[1] + 923\,v^3\,z^2\,t[1] - 170\,v^5\,z^2\,t[1] - \\
& \frac{158\,z^4\,t[1]}{v^7} + \frac{856\,z^4\,t[1]}{v^5} - \frac{2675\,z^4\,t[1]}{v^3} + \frac{5555\,z^4\,t[1]}{v} - 6309\,v\,z^4\,t[1] + 3495\,v^3\,z^4\,t[1] - \\
& 764\,v^5\,z^4\,t[1] - \frac{571\,z^6\,t[1]}{v^7} + \frac{2472\,z^6\,t[1]}{v^5} - \frac{5316\,z^6\,t[1]}{v^3} + \frac{9678\,z^6\,t[1]}{v} - 12\,212\,v\,z^6\,t[1] + \\
& 7854\,v^3\,z^6\,t[1] - 1905\,v^5\,z^6\,t[1] - \frac{1065\,z^8\,t[1]}{v^7} + \frac{4271\,z^8\,t[1]}{v^5} - \frac{6838\,z^8\,t[1]}{v^3} + \frac{10\,223\,z^8\,t[1]}{v} - \\
& 14\,979\,v\,z^8\,t[1] + 11\,135\,v^3\,z^8\,t[1] - 2747\,v^5\,z^8\,t[1] - \frac{1089\,z^{10}\,t[1]}{v^7} + \frac{4554\,z^{10}\,t[1]}{v^5} - \frac{5888\,z^{10}\,t[1]}{v^3} + \\
& \frac{6731\,z^{10}\,t[1]}{v} - 12\,089\,v\,z^{10}\,t[1] + 10\,104\,v^3\,z^{10}\,t[1] - 2323\,v^5\,z^{10}\,t[1] - \frac{618\,z^{12}\,t[1]}{v^7} + \frac{2991\,z^{12}\,t[1]}{v^5} - \\
& \frac{3386\,z^{12}\,t[1]}{v^3} + \frac{2755\,z^{12}\,t[1]}{v} - 6446\,v\,z^{12}\,t[1] + 5856\,v^3\,z^{12}\,t[1] - 1152\,v^5\,z^{12}\,t[1] - \frac{193\,z^{14}\,t[1]}{v^7} + \\
& \frac{1201\,z^{14}\,t[1]}{v^5} - \frac{1263\,z^{14}\,t[1]}{v^3} + \frac{675\,z^{14}\,t[1]}{v} - 2232\,v\,z^{14}\,t[1] + 2139\,v^3\,z^{14}\,t[1] - 327\,v^5\,z^{14}\,t[1] - \\
& \frac{31\,z^{16}\,t[1]}{v^7} + \frac{286\,z^{16}\,t[1]}{v^5} - \frac{290\,z^{16}\,t[1]}{v^3} + \frac{90\,z^{16}\,t[1]}{v} - 480\,v\,z^{16}\,t[1] + 474\,v^3\,z^{16}\,t[1] - \\
& 49\,v^5\,z^{16}\,t[1] - \frac{2\,z^{18}\,t[1]}{v^7} + \frac{37\,z^{18}\,t[1]}{v^5} - \frac{37\,z^{18}\,t[1]}{v^3} + \frac{5\,z^{18}\,t[1]}{v} - 58\,v\,z^{18}\,t[1] + 58\,v^3\,z^{18}\,t[1] - \\
& 3\,v^5\,z^{18}\,t[1] + \frac{2\,z^{20}\,t[1]}{v^5} - \frac{2\,z^{20}\,t[1]}{v^3} - 3\,v\,z^{20}\,t[1] + 3\,v^3\,z^{20}\,t[1] - \frac{12\,t[2]}{v^7} + \frac{57\,t[2]}{v^5} - \frac{132\,t[2]}{v^3} + \\
& \frac{191\,t[2]}{v} - 185\,v\,t[2] + 113\,v^3\,t[2] - 42\,v^5\,t[2] + 7\,v^7\,t[2] - \frac{141\,z^2\,t[2]}{v^7} + \frac{555\,z^2\,t[2]}{v^5} - \\
& \frac{1019\,z^2\,t[2]}{v^3} + \frac{1326\,z^2\,t[2]}{v} - 1324\,v\,z^2\,t[2] + 906\,v^3\,z^2\,t[2] - 368\,v^5\,z^2\,t[2] + 65\,v^7\,z^2\,t[2] - \\
& \frac{621\,z^4\,t[2]}{v^7} + \frac{2297\,z^4\,t[2]}{v^5} - \frac{3442\,z^4\,t[2]}{v^3} + \frac{3926\,z^4\,t[2]}{v} - 4391\,v\,z^4\,t[2] + 3447\,v^3\,z^4\,t[2] - \\
& 1452\,v^5\,z^4\,t[2] + 236\,v^7\,z^4\,t[2] - \frac{1539\,z^6\,t[2]}{v^7} + \frac{5416\,z^6\,t[2]}{v^5} - \frac{6630\,z^6\,t[2]}{v^3} + \frac{6342\,z^6\,t[2]}{v} - \\
& 8634\,v\,z^6\,t[2] + 7799\,v^3\,z^6\,t[2] - 3201\,v^5\,z^6\,t[2] + 447\,v^7\,z^6\,t[2] - \frac{2304\,z^8\,t[2]}{v^7} + \frac{8103\,z^8\,t[2]}{v^5} - \\
& \frac{8066\,z^8\,t[2]}{v^3} + \frac{5956\,z^8\,t[2]}{v} - 11\,036\,v\,z^8\,t[2] + 11\,100\,v^3\,z^8\,t[2] - 4223\,v^5\,z^8\,t[2] + 470\,v^7\,z^8\,t[2] - \\
& \frac{2049\,z^{10}\,t[2]}{v^7} + \frac{7857\,z^{10}\,t[2]}{v^5} - \frac{6540\,z^{10}\,t[2]}{v^3} + \frac{3161\,z^{10}\,t[2]}{v} - 9431\,v\,z^{10}\,t[2] + 10\,094\,v^3\,z^{10}\,t[2] - \\
& 3369\,v^5\,z^{10}\,t[2] + 277\,v^7\,z^{10}\,t[2] - \frac{1062\,z^{12}\,t[2]}{v^7} + \frac{4866\,z^{12}\,t[2]}{v^5} - \frac{3582\,z^{12}\,t[2]}{v^3} + \frac{791\,z^{12}\,t[2]}{v} - \\
& 5347\,v\,z^{12}\,t[2] + 5855\,v^3\,z^{12}\,t[2] - 1611\,v^5\,z^{12}\,t[2] + 90\,v^7\,z^{12}\,t[2] - \frac{312\,z^{14}\,t[2]}{v^7} + \frac{1885\,z^{14}\,t[2]}{v^5} -
\end{aligned}$$

$$\begin{aligned}
& \frac{1294 z^{14} t[2]}{v^3} - \frac{24 z^{14} t[2]}{v} - 1962 v z^{14} t[2] + 2139 v^3 z^{14} t[2] - 447 v^5 z^{14} t[2] + 15 v^7 z^{14} t[2] - \\
& \frac{48 z^{16} t[2]}{v^7} + \frac{439 z^{16} t[2]}{v^5} - \frac{292 z^{16} t[2]}{v^3} - \frac{64 z^{16} t[2]}{v} - 444 v z^{16} t[2] + 474 v^3 z^{16} t[2] - \\
& 66 v^5 z^{16} t[2] + v^7 z^{16} t[2] - \frac{3 z^{18} t[2]}{v^7} + \frac{56 z^{18} t[2]}{v^5} - \frac{37 z^{18} t[2]}{v^3} - \frac{14 z^{18} t[2]}{v} - 56 v z^{18} t[2] + \\
& 58 v^3 z^{18} t[2] - 4 v^5 z^{18} t[2] + \frac{3 z^{20} t[2]}{v^5} - \frac{2 z^{20} t[2]}{v^3} - \frac{z^{20} t[2]}{v} - 3 v z^{20} t[2] + 3 v^3 z^{20} t[2], \\
& - \frac{15 t[1]}{v^7 z} + \frac{75 t[1]}{v^5 z} - \frac{145 t[1]}{v^3 z} + \frac{119 t[1]}{v z} - \frac{5 v t[1]}{z} - \frac{59 v^3 t[1]}{z} + \frac{37 v^5 t[1]}{z} - \frac{7 v^7 t[1]}{z} - \\
& \frac{174 z t[1]}{v^7} + \frac{835 z t[1]}{v^5} - \frac{1531 z t[1]}{v^3} + \frac{1157 z t[1]}{v} + 28 v z t[1] - 599 v^3 z t[1] + 349 v^5 z t[1] - \\
& 65 v^7 z t[1] - \frac{850 z^3 t[1]}{v^7} + \frac{3945 z^3 t[1]}{v^5} - \frac{6825 z^3 t[1]}{v^3} + \frac{4628 z^3 t[1]}{v} + 572 v z^3 t[1] - \\
& 2589 v^3 z^3 t[1] + 1355 v^5 z^3 t[1] - 236 v^7 z^3 t[1] - \frac{2357 z^5 t[1]}{v^7} + \frac{10592 z^5 t[1]}{v^5} - \frac{17151 z^5 t[1]}{v^3} + \\
& \frac{10242 z^5 t[1]}{v} + 2426 v z^5 t[1] - 6203 v^3 z^5 t[1] + 2898 v^5 z^5 t[1] - 447 v^7 z^5 t[1] - \frac{4143 z^7 t[1]}{v^7} + \\
& \frac{18046 z^7 t[1]}{v^5} - \frac{27048 z^7 t[1]}{v^3} + \frac{14001 z^7 t[1]}{v} + 4943 v z^7 t[1] - 9086 v^3 z^7 t[1] + 3757 v^5 z^7 t[1] - \\
& 470 v^7 z^7 t[1] - \frac{4677 z^9 t[1]}{v^7} + \frac{20436 z^9 t[1]}{v^5} - \frac{28075 z^9 t[1]}{v^3} + \frac{12356 z^9 t[1]}{v} + 5701 v z^9 t[1] - \\
& 8474 v^3 z^9 t[1] + 3010 v^5 z^9 t[1] - 277 v^7 z^9 t[1] - \frac{3324 z^{11} t[1]}{v^7} + \frac{15552 z^{11} t[1]}{v^5} - \frac{19579 z^{11} t[1]}{v^3} + \\
& \frac{7101 z^{11} t[1]}{v} + 3936 v z^{11} t[1] - 5066 v^3 z^{11} t[1] + 1470 v^5 z^{11} t[1] - 90 v^7 z^{11} t[1] - \\
& \frac{1451 z^{13} t[1]}{v^7} + \frac{7879 z^{13} t[1]}{v^5} - \frac{9182 z^{13} t[1]}{v^3} + \frac{2622 z^{13} t[1]}{v} + 1644 v z^{13} t[1] - 1917 v^3 z^{13} t[1] + \\
& 420 v^5 z^{13} t[1] - 15 v^7 z^{13} t[1] - \frac{374 z^{15} t[1]}{v^7} + \frac{2596 z^{15} t[1]}{v^5} - \frac{2844 z^{15} t[1]}{v^3} + \frac{595 z^{15} t[1]}{v} + \\
& 405 v z^{15} t[1] - 441 v^3 z^{15} t[1] + 64 v^5 z^{15} t[1] - v^7 z^{15} t[1] - \frac{52 z^{17} t[1]}{v^7} + \frac{531 z^{17} t[1]}{v^5} - \\
& \frac{556 z^{17} t[1]}{v^3} + \frac{75 z^{17} t[1]}{v} + 54 v z^{17} t[1] - 56 v^3 z^{17} t[1] + 4 v^5 z^{17} t[1] - \frac{3 z^{19} t[1]}{v^7} + \frac{61 z^{19} t[1]}{v^5} - \\
& \frac{62 z^{19} t[1]}{v^3} + \frac{4 z^{19} t[1]}{v} + 3 v z^{19} t[1] - 3 v^3 z^{19} t[1] + \frac{3 z^{21} t[1]}{v^5} - \frac{3 z^{21} t[1]}{v^3} + \frac{15 t[2]}{v^7 z} - \\
& \frac{75 t[2]}{v^5 z} + \frac{145 t[2]}{v^3 z} - \frac{119 t[2]}{v z} + \frac{5 v t[2]}{z} + \frac{59 v^3 t[2]}{z} - \frac{37 v^5 t[2]}{z} + \frac{7 v^7 t[2]}{z} + \frac{84 z t[2]}{v^7} - \\
& \frac{490 z t[2]}{v^5} + \frac{1081 z t[2]}{v^3} - \frac{1038 z t[2]}{v} + 180 v z t[2] + 448 v^3 z t[2] - 337 v^5 z t[2] + 72 v^7 z t[2] + \\
& \frac{76 z^3 t[2]}{v^7} - \frac{918 z^3 t[2]}{v^5} + \frac{2851 z^3 t[2]}{v^3} - \frac{3548 z^3 t[2]}{v} + 1209 v z^3 t[2] + 1257 v^3 z^3 t[2] - \\
& 1228 v^5 z^3 t[2] + 301 v^7 z^3 t[2] - \frac{421 z^5 t[2]}{v^7} + \frac{369 z^5 t[2]}{v^5} + \frac{3029 z^5 t[2]}{v^3} - \frac{6661 z^5 t[2]}{v} +
\end{aligned}$$

$$\begin{aligned}
& 3872 v z^5 t[2] + 1535 v^3 z^5 t[2] - 2406 v^5 z^5 t[2] + 683 v^7 z^5 t[2] - \frac{1665 z^7 t[2]}{v^7} + \frac{4458 z^7 t[2]}{v^5} - \\
& \frac{396 z^7 t[2]}{v^3} - \frac{7887 z^7 t[2]}{v} + 7075 v z^7 t[2] + 316 v^3 z^7 t[2] - 2818 v^5 z^7 t[2] + 917 v^7 z^7 t[2] - \\
& \frac{2757 z^9 t[2]}{v^7} + \frac{8751 z^9 t[2]}{v^5} - \frac{4648 z^9 t[2]}{v^3} - \frac{6463 z^9 t[2]}{v} + 7797 v z^9 t[2] - 1291 v^3 z^9 t[2] - \\
& 2136 v^5 z^9 t[2] + 747 v^7 z^9 t[2] - \frac{2436 z^{11} t[2]}{v^7} + \frac{9066 z^{11} t[2]}{v^5} - \frac{5648 z^{11} t[2]}{v^3} - \frac{3946 z^{11} t[2]}{v} + \\
& 5287 v z^{11} t[2] - 1559 v^3 z^{11} t[2] - 1131 v^5 z^{11} t[2] + 367 v^7 z^{11} t[2] - \frac{1213 z^{13} t[2]}{v^7} + \frac{5591 z^{13} t[2]}{v^5} - \\
& \frac{3589 z^{13} t[2]}{v^3} - \frac{1831 z^{13} t[2]}{v} + 2195 v z^{13} t[2] - 829 v^3 z^{13} t[2] - 429 v^5 z^{13} t[2] + 105 v^7 z^{13} t[2] - \\
& \frac{340 z^{15} t[2]}{v^7} + \frac{2103 z^{15} t[2]}{v^5} - \frac{1357 z^{15} t[2]}{v^3} - \frac{619 z^{15} t[2]}{v} + 540 v z^{15} t[2] - 234 v^3 z^{15} t[2] - \\
& 109 v^5 z^{15} t[2] + 16 v^7 z^{15} t[2] - \frac{50 z^{17} t[2]}{v^7} + \frac{472 z^{17} t[2]}{v^5} - \frac{306 z^{17} t[2]}{v^3} - \frac{139 z^{17} t[2]}{v} + \\
& 72 v z^{17} t[2] - 34 v^3 z^{17} t[2] - 16 v^5 z^{17} t[2] + v^7 z^{17} t[2] - \frac{3 z^{19} t[2]}{v^7} + \frac{58 z^{19} t[2]}{v^5} - \frac{38 z^{19} t[2]}{v^3} - \\
& \left. \frac{18 z^{19} t[2]}{v} + 4 v z^{19} t[2] - 2 v^3 z^{19} t[2] - v^5 z^{19} t[2] + \frac{3 z^{21} t[2]}{v^5} - \frac{2 z^{21} t[2]}{v^3} - \frac{z^{21} t[2]}{v} \right\}
\end{aligned}$$

**Timing**[t1 = FastY2[BR[Knot[8, 17]]]]

**KnotTheory::credits:**

The minimum braids representing the knots with up to ...vided by Thomas Gittings. See arXiv:math.GT/0401051.

Homf at BR[7, {-3, -4, -5, -6, -2, -3, -1, -2, -2, -3, -1, -2, 4, 3, 5, 4, -2, -3, -1, -2, 4, 3, 5, 4, -2, -3, -1, -2, 4, 3, 5, 4, 4, 3, 5, 6, 4, 3, 2, 1, -2}], 5

Homf at BR[7, {-3, -4, -5, -6, -2, -3, -1, -2, -2, -3, -1, -2, 4, 3, 5, 4, -2, -3, -1, -2, 4, 3, 5, 4, 4, 3, 5, 6, 5, 3, 2, 1, -2}], 5

Homf at BR[7, {-3, -4, -5, -6, -2, -3, -1, -2, -2, -3, -1, -2, 4, 3, 5, 4, -2, -3, -1, -2, 4, 3, 5, 4, 4, 6, 5, 3, 2, 1, 6, 5, -2}], 5

Homf at BR[7, {-3, -4, -5, -6, -2, -3, -1, -2, -2, -3, -1, -2, 4, 3, 5, 4, -2, -3, -1, -2, 4, 3, 5, 4, 4, 6, 5, 4, 2, 1, 6, 5, -2}], 5

Homf at BR[7, {-3, -4, -5, -6, -2, -3, -1, -2, -2, -3, -1, -2, 4, 3, 5, 4, -2, -3, -1, -2, 4, 3, 5, 6, 4, 3, 2, 1, 5, 4, 6, 5, -2}], 5

Homf at BR[7, {-3, -4, -5, -6, -2, -3, -1, -2, -2, -3, -1, -2, 4, 3, 5, 4, -2, -3, -1, -2, 4, 3, 5, 6, 5, 3, 2, 1, 5, 4, 6, 5, -2}], 5

Homf at BR[7, {-3, -4, -5, -6, -2, -3, -1, -2, -2, -3, -1, -2, 4, 3, 5, 4, -2, -3, -1, -2, 4, 6, 5, 3, 2, 1, 6, 5, 5, 4, 6, 5, -2}], 5

Homf at BR[7, {-3, -4, -5, -6, -2, -3, -1, -2, -2, -3, -1, -2, 4, 3, 5, 4, -2, -3, -1, -2, 4, 3, 5, 4, 2, 1, 6, 5, 5, 4, 6, 5, -2}], 5

Homf at BR[7, {-3, -4, -5, -6, -2, -3, -1, -2, -2, -3, -1, -2, 4, 3, 5, 4, -2, -3, -1, -2, 4, 3, 5, 4, -2, -3, 6, 5, 4, 3, 1, -3, 5, 4, 6, 5, 5, 4, 6, 5, -2}], 5

Homf at BR[7, {-3, -4, -5, -6, -2, -3, -1, -2, -2, -3, -1, -2, 4, 3, 5, 4, -2, -3, -1, -2, 4, 3, 5, 4, -2, -3, 6, 5, 4, 3, 2, -3, 5, 4, 6, 5, 5, 4, 6, 5, -2}], 5







Homf at BR[7, {-3, -4, -5, -6, -2, -3, -1, -2, -2, -3, -1, 6, 5, 4, 2, 1, 5,  
4, 6, 5, -3, -4, -2, -3, 5, 4, 6, 5, -3, -4, -2, -3, 5, 4, 6, 5, 5, 4, 6, 5, -2}], 5

Homf at BR[7, {-3, -4, -5, -6, -2, -3, -1, -2, -2, -3, -1, 6, 5, 4, 3, 1, 5,  
4, 6, 5, -3, -4, -2, -3, 5, 4, 6, 5, -3, -4, -2, -3, 5, 4, 6, 5, 5, 4, 6, 5, -2}], 5

Homf at BR[7, {-3, -4, -5, -6, -2, -3, -1, -2, -2, 6, 5, 3, 2, 1, -2, -3, 5,  
4, 6, 5, -3, -4, -2, -3, 5, 4, 6, 5, -3, -4, -2, -3, 5, 4, 6, 5, 5, 4, 6, 5, -2}], 5

Homf at BR[7, {-3, -4, -5, -6, -2, -3, -1, -2, -2, 6, 5, 4, 2, 1, -2, -3, 5,  
4, 6, 5, -3, -4, -2, -3, 5, 4, 6, 5, -3, -4, -2, -3, 5, 4, 6, 5, 5, 4, 6, 5, -2}], 5

Homf at BR[7, {-3, -4, -5, -6, -2, -3, -1, 6, 5, 4, 2, 1, -3, -4, -2, -3, 5,  
4, 6, 5, -3, -4, -2, -3, 5, 4, 6, 5, -3, -4, -2, -3, 5, 4, 6, 5, 5, 4, 6, 5, -2}], 5

Homf at BR[7, {-3, -4, -5, -6, -2, -3, -1, 6, 5, 4, 3, 1, -3, -4, -2, -3, 5,  
4, 6, 5, -3, -4, -2, -3, 5, 4, 6, 5, -3, -4, -2, -3, 5, 4, 6, 5, 5, 4, 6, 5, -2}], 5

Homf at BR[7, {-3, -4, -5, -6, -2, 6, 5, 3, 2, 1, -2, -3, -3, -4, -2, -3, 5,  
4, 6, 5, -3, -4, -2, -3, 5, 4, 6, 5, -3, -4, -2, -3, 5, 4, 6, 5, 5, 4, 6, 5, -2}], 5

Homf at BR[7, {-3, -4, -5, -6, -2, 6, 5, 4, 2, 1, -2, -3, -3, -4, -2, -3, 5,  
4, 6, 5, -3, -4, -2, -3, 5, 4, 6, 5, -3, -4, -2, -3, 5, 4, 6, 5, 5, 4, 6, 5, -2}], 5

Homf at BR[6, {-2, -3, -1, -2, -2, -3, -1, -2, 4, 3, 5, 4,  
-2, -3, -1, -2, 4, 3, 5, 4, -2, -3, -1, -2, 4, 3, 5, 4, 4, 3, 5, 4, -1, 2, 1}], 4

Homf at BR[6, {-3, -4, -2, -3, -1, -2, -2, -3, -1, -2, 4, 3, 5, 4, -2,  
-3, -1, -2, 4, 3, 5, 4, -2, -3, -1, -2, 4, 3, 5, 4, 4, 3, 5, 4, -1, 4, 3, 2, 1}], 4

Homf at BR[6, {-3, -2, -3, -1, -2, -2, -3, -1, -2, 4, 3, 5, 4, -2,  
-3, -1, -2, 4, 3, 5, 4, -2, -3, -1, -2, 4, 3, 5, 4, 4, 3, 5, 4, -1, 3, 2, 1}], 4

Homf at BR[6, {-3, -4, -5, -2, -3, -1, -2, -2, -3, -1, -2, 4, 3, 5, 4, -2,  
-3, -1, -2, 4, 3, 5, 4, -2, -3, -1, -2, 4, 3, 5, 4, 4, 3, 5, 4, -1, 5, 4, 3, 2, 1}], 4

{212.926,

$$\left\{ \frac{2t[1]}{v^5} - \frac{3t[1]}{v^3} - \frac{6t[1]}{v} + 11vt[1] - 6v^3t[1] + \frac{2z^2t[1]}{v^5} + \frac{19z^2t[1]}{v^3} - \frac{98z^2t[1]}{v} + 151vz^2t[1] - \right.$$

$$66v^3z^2t[1] - \frac{15z^4t[1]}{v^5} + \frac{152z^4t[1]}{v^3} - \frac{496z^4t[1]}{v} + 674vz^4t[1] - 249v^3z^4t[1] - \frac{36z^6t[1]}{v^5} +$$

$$\frac{361z^6t[1]}{v^3} - \frac{1214z^6t[1]}{v} + 1523vz^6t[1] - 474v^3z^6t[1] - \frac{48z^8t[1]}{v^5} + \frac{409z^8t[1]}{v^3} -$$

$$\frac{1706z^8t[1]}{v} + 1989vz^8t[1] - 544v^3z^8t[1] - \frac{34z^{10}t[1]}{v^5} + \frac{258z^{10}t[1]}{v^3} - \frac{1422z^{10}t[1]}{v} +$$

$$1596vz^{10}t[1] - 374v^3z^{10}t[1] - \frac{10z^{12}t[1]}{v^5} + \frac{88z^{12}t[1]}{v^3} - \frac{714z^{12}t[1]}{v} + 780vz^{12}t[1] -$$

$$142v^3z^{12}t[1] - \frac{z^{14}t[1]}{v^5} + \frac{15z^{14}t[1]}{v^3} - \frac{208z^{14}t[1]}{v} + 221vz^{14}t[1] - 27v^3z^{14}t[1] + \frac{z^{16}t[1]}{v^3} -$$

$$\frac{32z^{16}t[1]}{v} + 33vz^{16}t[1] - 2v^3z^{16}t[1] - \frac{2z^{18}t[1]}{v} + 2vz^{18}t[1] - \frac{2t[2]}{v^5} + \frac{t[2]}{v} + 4vt[2] -$$

$$9v^3t[2] + 4v^5t[2] - \frac{28z^2t[2]}{v^5} + \frac{48z^2t[2]}{v^3} - \frac{39z^2t[2]}{v} + 92vz^2t[2] - 95v^3z^2t[2] +$$

$$30v^5z^2t[2] - \frac{102z^4t[2]}{v^5} + \frac{267z^4t[2]}{v^3} - \frac{294z^4t[2]}{v} + 472vz^4t[2] - 364v^3z^4t[2] +$$

$$87v^5z^4t[2] - \frac{168z^6t[2]}{v^5} + \frac{608z^6t[2]}{v^3} - \frac{835z^6t[2]}{v} + 1144vz^6t[2] - 721v^3z^6t[2] +$$

$$\begin{aligned}
& 132 v^5 z^6 t[2] - \frac{164 z^8 t[2]}{v^5} + \frac{704 z^8 t[2]}{v^3} - \frac{1295 z^8 t[2]}{v} + 1578 v z^8 t[2] - 839 v^3 z^8 t[2] + \\
& 116 v^5 z^8 t[2] - \frac{88 z^{10} t[2]}{v^5} + \frac{462 z^{10} t[2]}{v^3} - \frac{1164 z^{10} t[2]}{v} + 1338 v z^{10} t[2] - 578 v^3 z^{10} t[2] + \\
& 54 v^5 z^{10} t[2] - \frac{22 z^{12} t[2]}{v^5} + \frac{164 z^{12} t[2]}{v^3} - \frac{626 z^{12} t[2]}{v} + 692 v z^{12} t[2] - 218 v^3 z^{12} t[2] + \\
& 12 v^5 z^{12} t[2] - \frac{2 z^{14} t[2]}{v^5} + \frac{29 z^{14} t[2]}{v^3} - \frac{193 z^{14} t[2]}{v} + 206 v z^{14} t[2] - 41 v^3 z^{14} t[2] + \\
& v^5 z^{14} t[2] + \frac{2 z^{16} t[2]}{v^3} - \frac{31 z^{16} t[2]}{v} + 32 v z^{16} t[2] - 3 v^3 z^{16} t[2] - \frac{2 z^{18} t[2]}{v} + 2 v z^{18} t[2], \\
& - \frac{4 t[1]}{v^5 z} + \frac{11 t[1]}{v^3 z} - \frac{7 t[1]}{v z} - \frac{7 v t[1]}{z} + \frac{11 v^3 t[1]}{z} - \frac{4 v^5 t[1]}{z} - \frac{38 z t[1]}{v^5} + \frac{103 z t[1]}{v^3} - \\
& \frac{59 z t[1]}{v} - 73 v z t[1] + 97 v^3 z t[1] - 30 v^5 z t[1] - \frac{147 z^3 t[1]}{v^5} + \frac{407 z^3 t[1]}{v^3} - \frac{202 z^3 t[1]}{v} - \\
& 320 v z^3 t[1] + 349 v^3 z^3 t[1] - 87 v^5 z^3 t[1] - \frac{306 z^5 t[1]}{v^5} + \frac{915 z^5 t[1]}{v^3} - \frac{379 z^5 t[1]}{v} - \\
& 783 v z^5 t[1] + 685 v^3 z^5 t[1] - 132 v^5 z^5 t[1] - \frac{380 z^7 t[1]}{v^5} + \frac{1285 z^7 t[1]}{v^3} - \frac{411 z^7 t[1]}{v} - \\
& 1169 v z^7 t[1] + 791 v^3 z^7 t[1] - 116 v^5 z^7 t[1] - \frac{286 z^9 t[1]}{v^5} + \frac{1134 z^9 t[1]}{v^3} - \frac{258 z^9 t[1]}{v} - \\
& 1080 v z^9 t[1] + 544 v^3 z^9 t[1] - 54 v^5 z^9 t[1] - \frac{120 z^{11} t[1]}{v^5} + \frac{616 z^{11} t[1]}{v^3} - \frac{88 z^{11} t[1]}{v} - \\
& 604 v z^{11} t[1] + 208 v^3 z^{11} t[1] - 12 v^5 z^{11} t[1] - \frac{25 z^{13} t[1]}{v^5} + \frac{192 z^{13} t[1]}{v^3} - \frac{15 z^{13} t[1]}{v} - \\
& 191 v z^{13} t[1] + 40 v^3 z^{13} t[1] - v^5 z^{13} t[1] - \frac{2 z^{15} t[1]}{v^5} + \frac{31 z^{15} t[1]}{v^3} - \frac{z^{15} t[1]}{v} - 31 v z^{15} t[1] + \\
& 3 v^3 z^{15} t[1] + \frac{2 z^{17} t[1]}{v^3} - 2 v z^{17} t[1] + \frac{4 t[2]}{v^5 z} - \frac{11 t[2]}{v^3 z} + \frac{7 t[2]}{v z} + \frac{7 v t[2]}{z} - \frac{11 v^3 t[2]}{z} + \\
& \frac{4 v^5 t[2]}{z} + \frac{22 z t[2]}{v^5} - \frac{79 z t[2]}{v^3} + \frac{66 z t[2]}{v} + 45 v z t[2] - 88 v^3 z t[2] + 34 v^5 z t[2] + \\
& \frac{27 z^3 t[2]}{v^5} - \frac{201 z^3 t[2]}{v^3} + \frac{261 z^3 t[2]}{v} + 84 v z^3 t[2] - 288 v^3 z^3 t[2] + 117 v^5 z^3 t[2] - \frac{42 z^5 t[2]}{v^5} - \\
& \frac{194 z^5 t[2]}{v^3} + \frac{581 z^5 t[2]}{v} - 25 v z^5 t[2] - 539 v^3 z^5 t[2] + 219 v^5 z^5 t[2] - \frac{148 z^7 t[2]}{v^5} + \frac{99 z^7 t[2]}{v^3} + \\
& \frac{790 z^7 t[2]}{v} - 347 v z^7 t[2] - 642 v^3 z^7 t[2] + 248 v^5 z^7 t[2] - \frac{178 z^9 t[2]}{v^5} + \frac{394 z^9 t[2]}{v^3} + \\
& \frac{669 z^9 t[2]}{v} - 564 v z^9 t[2] - 491 v^3 z^9 t[2] + 170 v^5 z^9 t[2] - \frac{96 z^{11} t[2]}{v^5} + \frac{362 z^{11} t[2]}{v^3} + \\
& \frac{346 z^{11} t[2]}{v} - 428 v z^{11} t[2] - 250 v^3 z^{11} t[2] + 66 v^5 z^{11} t[2] - \frac{23 z^{13} t[2]}{v^5} + \frac{148 z^{13} t[2]}{v^3} + \\
& \frac{103 z^{13} t[2]}{v} - 161 v z^{13} t[2] - 80 v^3 z^{13} t[2] + 13 v^5 z^{13} t[2] - \frac{2 z^{15} t[2]}{v^5} + \frac{28 z^{15} t[2]}{v^3} + \frac{16 z^{15} t[2]}{v} - \\
& 29 v z^{15} t[2] - 14 v^3 z^{15} t[2] + v^5 z^{15} t[2] + \frac{2 z^{17} t[2]}{v^3} + \frac{z^{17} t[2]}{v} - 2 v z^{17} t[2] - v^3 z^{17} t[2] \}
\end{aligned}$$







$$\begin{aligned}
& \{179.463, \\
& \left\{ \frac{2t[1]}{v^5} - \frac{3t[1]}{v^3} - \frac{6t[1]}{v} + 11vt[1] - 6v^3t[1] + \frac{2z^2t[1]}{v^5} + \frac{19z^2t[1]}{v^3} - \frac{98z^2t[1]}{v} + 151vz^2t[1] - \right. \\
& 66v^3z^2t[1] - \frac{15z^4t[1]}{v^5} + \frac{152z^4t[1]}{v^3} - \frac{496z^4t[1]}{v} + 674vz^4t[1] - 249v^3z^4t[1] - \frac{36z^6t[1]}{v^5} + \\
& \frac{361z^6t[1]}{v^3} - \frac{1214z^6t[1]}{v} + 1523vz^6t[1] - 474v^3z^6t[1] - \frac{48z^8t[1]}{v^5} + \frac{409z^8t[1]}{v^3} - \\
& \frac{1706z^8t[1]}{v} + 1989vz^8t[1] - 544v^3z^8t[1] - \frac{34z^{10}t[1]}{v^5} + \frac{258z^{10}t[1]}{v^3} - \frac{1422z^{10}t[1]}{v} + \\
& 1596vz^{10}t[1] - 374v^3z^{10}t[1] - \frac{10z^{12}t[1]}{v^5} + \frac{88z^{12}t[1]}{v^3} - \frac{714z^{12}t[1]}{v} + 780vz^{12}t[1] - \\
& 142v^3z^{12}t[1] - \frac{z^{14}t[1]}{v^5} + \frac{15z^{14}t[1]}{v^3} - \frac{208z^{14}t[1]}{v} + 221vz^{14}t[1] - 27v^3z^{14}t[1] + \frac{z^{16}t[1]}{v^3} - \\
& \frac{32z^{16}t[1]}{v} + 33vz^{16}t[1] - 2v^3z^{16}t[1] - \frac{2z^{18}t[1]}{v} + 2vz^{18}t[1] - \frac{2t[2]}{v^5} + \frac{t[2]}{v} + 4vt[2] - \\
& 9v^3t[2] + 4v^5t[2] - \frac{28z^2t[2]}{v^5} + \frac{48z^2t[2]}{v^3} - \frac{39z^2t[2]}{v} + 92vz^2t[2] - 95v^3z^2t[2] + \\
& 30v^5z^2t[2] - \frac{102z^4t[2]}{v^5} + \frac{267z^4t[2]}{v^3} - \frac{294z^4t[2]}{v} + 472vz^4t[2] - 364v^3z^4t[2] + \\
& 87v^5z^4t[2] - \frac{168z^6t[2]}{v^5} + \frac{608z^6t[2]}{v^3} - \frac{835z^6t[2]}{v} + 1144vz^6t[2] - 721v^3z^6t[2] + \\
& 132v^5z^6t[2] - \frac{164z^8t[2]}{v^5} + \frac{704z^8t[2]}{v^3} - \frac{1295z^8t[2]}{v} + 1578vz^8t[2] - 839v^3z^8t[2] + \\
& 116v^5z^8t[2] - \frac{88z^{10}t[2]}{v^5} + \frac{462z^{10}t[2]}{v^3} - \frac{1164z^{10}t[2]}{v} + 1338vz^{10}t[2] - 578v^3z^{10}t[2] + \\
& 54v^5z^{10}t[2] - \frac{22z^{12}t[2]}{v^5} + \frac{164z^{12}t[2]}{v^3} - \frac{626z^{12}t[2]}{v} + 692vz^{12}t[2] - 218v^3z^{12}t[2] + \\
& 12v^5z^{12}t[2] - \frac{2z^{14}t[2]}{v^5} + \frac{29z^{14}t[2]}{v^3} - \frac{193z^{14}t[2]}{v} + 206vz^{14}t[2] - 41v^3z^{14}t[2] + \\
& v^5z^{14}t[2] + \frac{2z^{16}t[2]}{v^3} - \frac{31z^{16}t[2]}{v} + 32vz^{16}t[2] - 3v^3z^{16}t[2] - \frac{2z^{18}t[2]}{v} + 2vz^{18}t[2], \\
& - \frac{4t[1]}{v^5z} + \frac{11t[1]}{v^3z} - \frac{7t[1]}{vz} - \frac{7vt[1]}{z} + \frac{11v^3t[1]}{z} - \frac{4v^5t[1]}{z} - \frac{38zt[1]}{v^5} + \frac{103zt[1]}{v^3} - \\
& \frac{59zt[1]}{v} - 73vzt[1] + 97v^3zt[1] - 30v^5zt[1] - \frac{147z^3t[1]}{v^5} + \frac{407z^3t[1]}{v^3} - \frac{202z^3t[1]}{v} - \\
& 320vz^3t[1] + 349v^3z^3t[1] - 87v^5z^3t[1] - \frac{306z^5t[1]}{v^5} + \frac{915z^5t[1]}{v^3} - \frac{379z^5t[1]}{v} - \\
& 783vz^5t[1] + 685v^3z^5t[1] - 132v^5z^5t[1] - \frac{380z^7t[1]}{v^5} + \frac{1285z^7t[1]}{v^3} - \frac{411z^7t[1]}{v} - \\
& 1169vz^7t[1] + 791v^3z^7t[1] - 116v^5z^7t[1] - \frac{286z^9t[1]}{v^5} + \frac{1134z^9t[1]}{v^3} - \frac{258z^9t[1]}{v} - \\
& 1080vz^9t[1] + 544v^3z^9t[1] - 54v^5z^9t[1] - \frac{120z^{11}t[1]}{v^5} + \frac{616z^{11}t[1]}{v^3} - \frac{88z^{11}t[1]}{v} -
\end{aligned}$$

$$\begin{aligned}
& 604 v z^{11} t[1] + 208 v^3 z^{11} t[1] - 12 v^5 z^{11} t[1] - \frac{25 z^{13} t[1]}{v^5} + \frac{192 z^{13} t[1]}{v^3} - \frac{15 z^{13} t[1]}{v} - \\
& 191 v z^{13} t[1] + 40 v^3 z^{13} t[1] - v^5 z^{13} t[1] - \frac{2 z^{15} t[1]}{v^5} + \frac{31 z^{15} t[1]}{v^3} - \frac{z^{15} t[1]}{v} - 31 v z^{15} t[1] + \\
& 3 v^3 z^{15} t[1] + \frac{2 z^{17} t[1]}{v^3} - 2 v z^{17} t[1] + \frac{4 t[2]}{v^5 z} - \frac{11 t[2]}{v^3 z} + \frac{7 t[2]}{v z} + \frac{7 v t[2]}{z} - \frac{11 v^3 t[2]}{z} + \\
& \frac{4 v^5 t[2]}{z} + \frac{22 z t[2]}{v^5} - \frac{79 z t[2]}{v^3} + \frac{66 z t[2]}{v} + 45 v z t[2] - 88 v^3 z t[2] + 34 v^5 z t[2] + \\
& \frac{27 z^3 t[2]}{v^5} - \frac{201 z^3 t[2]}{v^3} + \frac{261 z^3 t[2]}{v} + 84 v z^3 t[2] - 288 v^3 z^3 t[2] + 117 v^5 z^3 t[2] - \frac{42 z^5 t[2]}{v^5} - \\
& \frac{194 z^5 t[2]}{v^3} + \frac{581 z^5 t[2]}{v} - 25 v z^5 t[2] - 539 v^3 z^5 t[2] + 219 v^5 z^5 t[2] - \frac{148 z^7 t[2]}{v^5} + \frac{99 z^7 t[2]}{v^3} + \\
& \frac{790 z^7 t[2]}{v} - 347 v z^7 t[2] - 642 v^3 z^7 t[2] + 248 v^5 z^7 t[2] - \frac{178 z^9 t[2]}{v^5} + \frac{394 z^9 t[2]}{v^3} + \\
& \frac{669 z^9 t[2]}{v} - 564 v z^9 t[2] - 491 v^3 z^9 t[2] + 170 v^5 z^9 t[2] - \frac{96 z^{11} t[2]}{v^5} + \frac{362 z^{11} t[2]}{v^3} + \\
& \frac{346 z^{11} t[2]}{v} - 428 v z^{11} t[2] - 250 v^3 z^{11} t[2] + 66 v^5 z^{11} t[2] - \frac{23 z^{13} t[2]}{v^5} + \frac{148 z^{13} t[2]}{v^3} + \\
& \frac{103 z^{13} t[2]}{v} - 161 v z^{13} t[2] - 80 v^3 z^{13} t[2] + 13 v^5 z^{13} t[2] - \frac{2 z^{15} t[2]}{v^5} + \frac{28 z^{15} t[2]}{v^3} + \frac{16 z^{15} t[2]}{v} - \\
& 29 v z^{15} t[2] - 14 v^3 z^{15} t[2] + v^5 z^{15} t[2] + \left. \left. \frac{2 z^{17} t[2]}{v^3} + \frac{z^{17} t[2]}{v} - 2 v z^{17} t[2] - v^3 z^{17} t[2] \right\} \right\}
\end{aligned}$$

**t1 - t2**

{0, 0}